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ABSTRACT

Libraries are becoming information access points, not just book repositories. With greater distribution of printed materials, increased use of optical disks and other compact storage techniques, the emergence of publication on demand, and the proliferation of electronic databases, libraries without large collections will be able to provide prompt access to materials. The library of the future will not be judged by the size of its collection, but by its success in providing information quickly and accurately. Technology and a national library network will free libraries from many routine chores of processing and locating information. By using telecommunications it will be possible for researchers to do a comprehensive search for information on a topic without ever leaving home. Books will always be the backbone of the library, however, and the use of computer technology does not mean a loss of human contact for the patron. Library users will always want and need to talk to a librarian. (MES)

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# QUIET, COMPUTER AT WORK

When the world first became civilized and writing was developed, people felt threatened by the idea. The entire course of the world was forever changed. Many people today feel threatened by computer technology because computers do seem to offer an alternative to the written word. But printed materials and libraries will always be necessary to mankind.[1] Possible what will happen is that two classes of library patrons will develop - "haves" and "have-nots." The "haves will be people who can access computerized information, and the "have-nots" will be people who need information from a source of printed material or the broadcasting media which make computer use difficult.[2]

Tomorrow's library will use the best of the past and build on the present technological opportunities to make libraries of the future where people will be anxious to learn and want to seek information.[3]

The unchanged purpose of the library is to support public access to information and knowledge, and thereby create a democratic form of government. The main issue is how libraries can use a highly technological environment to accomplish their mission as learning institutions.[4] Although not an end in itself, technological service to libraries and to the people libraries serve must be well organized if technological support is to be ready when it is needed.[5]

Libraries are becoming information access points, not just book repositories.[6] All types of libraries are in the middle of a 'quiet revolution.'[7] There will be several varieties of libraries in the

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electronic age,while changing from manual to electronic systems.[8] In the ideal world we should have a comparable variety of ways and paths in the use of libraries. Large "library supermarkets" should be available to everyone.[9] This is necessary because we have become a nation of single person households, single-parent families, and families in which both parents work full-time. Therefore, most library users are constantly pressed for time. In fact, the library of the future will be judged not by the size of its collection, but by its success in providing information quickly and accurately.[10]

With greater distribution of printed material, increased use of optical disks, and other compact storage techniques, emergence of publication on demand, and proliferation of electronic databases, libraries without large collections will be able to provide prompt access to materials and quick answers.[11] This will prove important because an element often overlooked in library service is the value of currency in the information the library provides. Students, businesses, and curious people want prompt answers.[12] A small and sensitive neighborhood library of the future will cater to the information needs of the community. Actually, within ten years over half of the services provided to library users will be to individuals who never come into the library.[13] The library of the future will be called on to interpret the many access points for patrons.[14] In future years it is possible that a library will be able to help a patron identify a document located in Tokyo, have it sent by satellite, and transmit it to the patron's home or office using telephone or cable equipment.[15] In the future, a researcher engaged in experimental work who needs advice from his colleagues in distant areas, may go to his

computer terminal and send messages concerning his work in progress. The colleagues would receive the message on their own terminals and reply at their own convenience. The dialogue would continue until the researcher's work is completed. Then a report is prepared at the same terminal and transported by the computer to the editor of a journal for publication. In this manner, advances in communication technology may indeed produce the "global village" envisioned by Marshall McLuhan.[16]

Libraries have responded to the situation involving new technology by forming and participating in networks and cooperations, aided by computers and communication technology.[17] Once it is computer-based, the library has assistance on operational, managerial, administration, and policy decisions.[18] It will provide access to a huge range of information and service. The library of the future will be an access point for those who do not have computers or computer terminals in their homes or offices.[19]

In our mobile society libraries would simplify and extend library access by using a universal library card.[20] Library patrons will be issued identification cards with machine-readable labels. A computer file would then be established on each card holder. In order to borrow a book, the patron would present the book and the card at the circulation desk where the circulation clerk uses data-collection equipment to read the card. The clerk then instructs the computer to update the file and show which patron checked out this particular book. The computer also checks to see if the patron is in good-standing. If not, the computer will reject the transaction with a message explaining why. [21] Also the patron will be assured that the library will respect his privacy in the same manner as his doctor or lawyer.[22] Libraries will develop an information infrastructure

to provide access to a growing and changing flow of information. The term information infrastructure is used in an analogous manner. It includes communication channels, delivery systems, and access pointsd needed for the development and use of information. [23] It should soon be possible to interrogate a library's card catalog with a computer responding to the human voice, and order books from the library using a code number from a patron's own book catalog for next day delivery.

Delivery systems may be the United States mail or a facsimile transmission. [24] This could pose a problem with devivery and return but an answer could be paperbacks and microfilms. Eventually, as individual readers aquire low-cost microfiche readers, the libraries will dessimate microfiche cards, either loaning, selling, or duplicatig them. [25] Reference will be carried by cable companies and made available to patrons at the library or at home for fees. [26]

A new job title of "Information Specialist" will be introduced. It will provide a career choice for top graduates of library schools. The job will be filled by librarians having significant background and experience in information technology and special subject areas, particularly databased research. Librarians are trained now to do refrence and yet have very little time to spend doing the actual searching. They are aware that the challenge of today and the future is not just to get information, but to get the right information. Computer technology will allow libraries to develop a new fee-based interactive research service. Fees would be charged at a "level of effort" required by the library staff. [27]

A database search is often a faster and less costly way to find information. Since free access to information is a cornerstone of the

library ethic, the issue is who pays and what for. Fees would only be charged for new services the library cannot provide for free. There would by no reduction in currant free services and no charges for simple computer searches which many librarians now charge patrons. [28]

Since books will always be the backbone of the library, the use of computer technology does not mean a loss of human contact for the library patron. Library users will always want and need to talk to a real live librarian. [29] "Information is different from most commodities. It is possible to sell it and keep it at the same time." [30] However, a national network would free libraries from many routine chores of processing and location information. [31]

Serials control is one of the most difficult chores in the library. It is complicated by the tendency of serial publications to change. A few libraries have built their own serials control centers using their own computers. [32] The National Agriculture Library and the Association of Research Librarians have worked on a project to lay ground work for a Nationl Serials Data Program now an intergral part of the serials processing at the Library of Congress. [33]

Some libraries have begun implementing serials management with Foxon's MicroLinx chick-in. The moidule is the first of a new series of microcomputer software that allows libraries to assume local control of many operations that formerly were only available through mainframe timesharing. Automated serials check-in is the central function of the package, with the electronic transfer of claims being an added feature.

[[34] As major journals go online, the use of machine readable online periodical interfaces will increase. The percentage of student users will increase and the student body will be the present generation of computer confortable children.[35] This is necessary because by the year 2000, 25% of existing journals will be published and made available only in electronic form. [36]

New technology is assisting ordering books and keeping track of ones on hand. Files of acquistions data are currently being maintained by computer for a number of libraries. With a well-organized computer-based system, current information about the status of an order can be speedily input in the computer's file. The updated information can then be passed to locations in the library where the need to know exists.[37]

Library catalog purpose is to organize a library collection and permit easy access. A most exciting development in cataloging is a public access online catalog, which provides speedy online access to all the library's holdings by use of a computer terminal. The Library of Congress began using this system in the 1970's. In planning for the future, many libraries are preparing to use this idea.[38] By the end of the century this conception will be standard in all libraries except the smallest ones.[39] Online catalogs will replace traditional card catalogs. It will be faster and more economical to update information in computer produced form than it will be to update and publish new editions of works printed in paper form.[40]

A "giant leap" for the informationn profession will come when the bibliographic databases with holdings information can be linked online to the refrence databases created by the abstracting and indexing services.

With this incrseased access, librarians and uses will expereience a significantly different approach to stored knowledge that has been possible in the past. "A distinction must be made, however, between the existance of the need and the person's awareness of the need. k Needing information is universal, at least among people above the age of five in a literate society. Knowing that they need to know is not universal. [41]

In September, 1985, Georgia State University Library introduced an online public access catalog known as OLLI (Online Library Information). It is a command-driven system with the basic search keys. The entire records for the Law Library and bibliography records for more that half of the 900,000 volumes in the central library are housed on it. The system takes time but produces a large number of success. [42]

Computer-based bibliographic utility is an organization that makes library catalog records available to individual via online communications technology.[43] Network resources will be housed in large computers in several regions of the nation, as repositories of large bibliographic databases and as communication concentrates for messages among libraries. These resources will also be directly available as service centers for libraries which do not have access to computer facilitiess or are not members of a local consortium. Regions will be interconnected by telecommunication links which will be a combination of regular telephone lines, value-added network utilities, microwavve, and satallite transmissions. The Library of Congress will be a node in the nationwide network, and its bibliographic system will serve as the backbone of the national network and as liason with networks and information systems of other nations.[44]

"Just visualize the ultimate head trip for every collection development officer in the year 2000. Seated in front of his Hazltine x-10,000, playing upon the keyboard like Lon Chaney at the pipe organ in 'Phantom of the Opera,' totally engrossed in pounding out a bibliographic orgy of row upon row of exhaustive citations, punching out commands for printouts of these and film copies of those, until finally, exhausted but exhilerated, he whirls around to face the gathered crowd of wide-eyed patrons who spontaneously burst into frenzied applause at the performance. That would be access with a capital A."[45]

Cauzin Systems, Incorparated, has developed a technology for printing computer software and other digital data on paper and for retrieving that information using printed strips called Softstrips. These strips can be used with IBM, MacIntosh, and Apple II. A nine inch strip of softstrip can contain 5,550 bytes and practically any combination of file types can by stored on the data strips. This technology provies an ideal distribution medium for databases of modest size. It has been called the best link between print and computers. The publication, Library Hi Tech News, plans to publish future bibliographies on data strips, making it possible for librarians and information specialists to develop personal indexes to recent literature. Entries can be secanned into a microcomputer, edited to remove entries not of interest to an individual, then manipulated by an information retrieval package to produce keyword indexes to the entries. These keyword indexes will allow retrieval by name, acronym, word, or any combination of these elements. The personalized databases that result can be used by libraries to retrieve specific information resources when needed. [46]

The following example shows an example of researching in the future. The researcher has the research problem and the library has the components of the solution. She calls the library and they send has via electronic mail, the details of how to access needed files. The researcher has been building a file of her own findings, using LOTUS4-5-6 software. From the same terminal she uses to access bibliographic data, she works with hard facts and figures. She also tries a new online database that the library has told her about. The library also retrieves and delivers all the citations they have on her subject. The researcher selects the citations she needs and transmits them on BAKER, which is both an electronic mail address and the campus phone number to reach the library's fee-based documents delivery service. The citations will be copied and delivered to her office.

The researcher also regularly scans the library's comprehensive online catalog GLADIS which tells her the correct database to access for her needed information. She can also have GLADIS recall a needed book from another patron and BAKER will deliver it to her computer mailbox.

If the library does not have an item in her bibliography, just a press of the button sends her request to the Interlibrary Borrowing Service. Then sends the requests on to other libraries selected by searching more extended bibliographies, to get the items for her. The library also runs a monthly check for her against several interdisciplinary databases and sends the relavant items to her.[47] The entire research project has been completed without her ever going to the library. The researcher simply uses her telephone and her computer in connection with the local library.

This is not to say that even in the future, with a model information

network available, every last citizen might choose to make use of it. There will undoubtedly be many people who would still elect to go through life information-poor, or rather, information-oblivious. [48]

The general concenses is that, while totally changing the library, computer technology will be a great advantage for everyone who uses a library facility. The process of change will mean a re-education for most library patrons, but will also open up a whole new world for anyone willing to take the time to learn how to punch a few buttons.

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